

# Microcontroller Based Systems (CCE2014) Design Brief

Prof. Johann A. Briffa

Group Number:

Description	Grade
<b>Problem description and solution design concept: [10%]</b>	
The design concept is well thought through and addresses at least the minimum required specification. Its is mainly described coherently and concisely with only minor shortcomings.	<div>Help</div> <div>65%</div>
<b>Engagement with functional requirements and realisation within ARM MDK: [30%]</b>	
Functional requirements are addressed very well, concisely and comprehensively with a thorough and detailed connection made to the ARM MDK.	<div>Help</div> <div>85%</div>
<b>Initial planning for implementation: [30%]</b>	
A thorough professional initial implementation plan regarding user interface, hardware design and object-oriented structure of the implementation with only minor oversights and shortcomings.	<div>Help</div> <div>75%</div>
<b>Organisation and management planning: [15%]</b>	
A thorough approach of near professional standard to task identification and time planning with a professional understanding and presentation of task interdependencies and only a few minor flaws.	<div>Help</div> <div>75%</div>
<b>Layout of report: [5%]</b>	
A professional layout and organisation of material.	<div>Help</div> <div>100%</div>
Report template has been used correctly: [2%]	<div>✓</div>
Report does not exceed the maximum length: [2%]	<div>✓</div>
Figures in the report are legible, and any text readable, at print size: [2%]	<div>✓</div>
References are complete and correct: [2%]	<div>✓</div>
Report compiles correctly as given: [2%]	<div>✓</div>
<b>Overall Grade:</b> <div>81%</div>	

Briefly justify the overall grade, and give additional feedback.

Text in figures 3 and 4 is in the limit of readability. In 2.1 you refer to the WM8731 codec, which is a sound card. While using this is suitable, it is likely much more complex than simply digitising directly with the ADC. Also, if you use the sound card, then the circuit of fig1 is largely unnecessary (since this card will already do the same function). Note also that the LCD display is already included with the board, and the components for the circuit of fig1 can be obtained from Mr Sacco, no need to source these separately. In 2.2 you refer to sampling with the ADC, which contradicts what you said earlier - it seems that 2.1 was written earlier, and needs to be updated. The sampling rate given would not give much headroom from the highest DTMF frequency, which is not recommended. In 2.4 you should number the requirements, to facilitate verification.

## Instructions

The group examiner should complete this assessment and submit it on the following folder on SVN:

<https://username@cce2014-ict.research.um.edu.mt/svn/CCE2014/2023-2024/assessment/designbrief/>

The filename should be designbrief-XX.pdf, where XX is the two-digit group number. *Please follow the naming*

convention strictly as a script will be used to collect grades. All grades are provisional until Board of Examiners approval.

## Marking Criteria

Grade	Description
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### Problem description and solution design concept: [10%]

- |           |   |
|-----------|---|
| 0%–44%:   | An insignificant or limited attempt at presenting the design concept, or the presented concept shows a misunderstanding of the task. The design is either not sufficiently developed or difficult to understand and misrepresents the chosen problem. |
| 45%–49%:  | A design concept has been presented, but it lacks thoroughness and coherence. Its description has significant omissions and/or inconsistencies.   |
| 50%–54%:  | The design concept is thought through but has significant shortcomings. Its is described adequately but with some omissions and/or inconsistencies.   |
| 55%–59%:  | The design concept is thought through but has some shortcomings. Its is described adequately.   |
| 60%–69%:  | The design concept is well thought through and addresses at least the minimum required specification. Its is mainly described coherently and concisely with only minor shortcomings.  |
| 70%–74%:  | The design concept is well thought through and addresses the minimum required specification and some additional features. Its is described coherently and concisely.  |
| 75%–79%:  | The design concept is very well thought through and comprehensively addresses the minimum required specification and additional features. It is described coherently and concisely.   |
| 80%–89%:  | The design concept is very well thought through and comprehensively addresses the minimum required specification and additional features. It is described coherently and concisely, showing critical understanding.                                   |
| 90%–100%: | The design concept is exceptionally well presented and comprehensively addresses the minimum required specification and additional features. It is described coherently and concisely, showing critical understanding.                                |

### Engagement with functional requirements and realisation within ARM MDK: [30%]

- |           |  |
|-----------|--|
| 0%–44%:   | Insignificant or inappropriate attempt to address functional requirements, or some functional requirements are addressed but with limited scope and with significant shortcomings and oversights. No significant awareness of connection to the ARM MDK. |
| 45%–49%:  | Some functional requirements are addressed but with limited scope and with some significant shortcomings and oversights. The connection between the functional requirements and the ARM MDK is poor.   |
| 50%–54%:  | Functional requirements are addressed adequately and a connection made to the ARM MDK but with significant shortcomings and oversights.  |
| 55%–59%:  | Functional requirements are addressed adequately and a connection made to the ARM MDK but with some shortcomings and oversights.   |
| 60%–69%:  | Functional requirements are addressed adequately and a detailed connection made to the ARM MDK with some limited oversights and shortcomings.  |
| 70%–74%:  | Functional requirements are addressed well and a detailed connection made to the ARM MDK with only minor oversights and shortcomings.  |
| 75%–79%:  | Functional requirements are addressed well, concisely and comprehensively with an informed and detailed connection made to the ARM MDK with only minor oversights and shortcomings.  |
| 80%–89%:  | Functional requirements are addressed very well, concisely and comprehensively with a thorough and detailed connection made to the ARM MDK.  |
| 90%–100%: | Functional requirements are addressed very well, concisely and comprehensively with a thorough and detailed connection made to the ARM MDK.  |

### Initial planning for implementation: [30%]

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Grade	Description
<b>0%–44%:</b>	An insignificant or inadequate initial implementation plan regarding user interface, hardware design and object-oriented structure of the implementation with severe omissions and flaws and limited awareness of the implementation.
<b>45%–49%:</b>	A limited initial implementation plan regarding user interface, hardware design and object-oriented structure of the implementation with a few severe oversights and shortcomings.
<b>50%–54%:</b>	A barely adequate initial implementation plan regarding user interface, hardware design and object-oriented structure of the implementation with some significant oversights and shortcomings.
<b>55%–59%:</b>	An adequate initial implementation plan regarding user interface, hardware design and object-oriented structure of the implementation with some oversights and shortcomings.
<b>60%–69%:</b>	A good professional initial implementation plan regarding user interface, hardware design and object-oriented structure of the implementation with only some oversights and shortcomings.
<b>70%–74%:</b>	A good professional initial implementation plan regarding user interface, hardware design and object-oriented structure of the implementation with only minor oversights and shortcomings.
<b>75%–79%:</b>	A thorough professional initial implementation plan regarding user interface, hardware design and object-oriented structure of the implementation with only minor oversights and shortcomings.
<b>80%–89%:</b>	An excellent and very thorough professional initial implementation plan regarding user interface, hardware design and object-oriented structure of the implementation.
<b>90%–100%:</b>	An exceptional and very thorough professional initial implementation plan regarding user interface, hardware design and object-oriented structure of the implementation.

**Organisation and management planning: [15%]**

- 0%–44%:** An insufficient approach to task identification and time planning with minimal understanding and presentation of task interdependencies and with severe flaws or omissions.
- 45%–49%:** A limited approach to task identification and time planning with restricted understanding and presentation of task interdependencies and with severe flaws.
- 50%–54%:** An adequate approach to task identification and time planning with some understanding and presentation of task interdependencies, but with significant flaws.
- 55%–59%:** An adequate approach to task identification and time planning with some understanding and presentation of task interdependencies, but with minor flaws.
- 60%–69%:** A good approach to task identification and time planning with appropriate presentation of task interdependencies and with only some flaws.
- 70%–74%:** A good approach to task identification and time planning with appropriate presentation of task interdependencies and with only minor flaws.
- 75%–79%:** A thorough approach of near professional standard to task identification and time planning with a professional understanding and presentation of task interdependencies and only a few minor flaws.
- 80%–89%:** An excellent and very thorough approach of professional standard to task identification and time planning with a professional understanding and presentation of task interdependencies.
- 90%–100%:** An exceptional and very thorough approach of professional standard to task identification and time planning with a professional understanding and presentation of task interdependencies.

**Layout of report: [5%]**

- 0%–44%:** An unorganised layout and organisation of material with significant design and readability errors.
- 45%–49%:** A layout and organisation of material with severe shortcomings.
- 50%–54%:** An adequate layout and organisation of material with significant shortcomings.
- 55%–59%:** An adequate layout and organisation of material with some shortcomings.
- 60%–69%:** A good layout and organisation of material with some shortcomings.
- 70%–74%:** A good layout and organisation of material with only minor shortcomings.

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<i>Grade</i>	<i>Description</i>
<b>75%–79%:</b>	A very good layout and organisation of material with a few minor shortcomings.
<b>80%–89%:</b>	A professional layout and organisation of material.
<b>90%–100%:</b>	A professional layout and organisation of material.